

VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the Purdue University Cooperative Extension Service

Dan Egel, Editor
(812) 886-0198
egel@purdue.edu



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SAVE MONEY WITH MELCAST - (Dan Egel) - Those individuals who are planning to apply fungicides to manage fungal diseases of muskmelon, pumpkin and watermelon may be able to get some additional help this summer. The help comes in the form of a disease forecasting system known as MELCAST (MELON disease forCASTer). See below for some MELCAST facts.

- MELCAST was developed by Purdue University researcher Dr. Rick Latin to use weather data to determine the optimum fungicide application timing.
- The usual procedure for applying fungicides for these diseases is to schedule applications every 7 to 14 days. MELCAST allows growers to apply fungicides according to when the weather is most conducive to disease.
- Growers using MELCAST will apply fungicides every 35 Environmental Favorability (EFI) values for watermelon and pumpkin and 20 EFI values for muskmelon. After fungicide applications, growers reset the EFI values much as one would keep track of mileage for oil changes.
- MELCAST EFI values may be obtained by phone at (800) 939-1604 Monday through Friday, on the Internet at <<http://btny.agriculture.purdue.edu/melcast/>> and/or by a free weekly newsletter, the *MELCAST Update*. Call Dan Egel for free MELCAST record books or download one from the Internet.
- Growers apply fungicides every two weeks unless MELCAST EFI values exceed the values given above. No spray interval will be longer than 14 days.
- The diseases for which MELCAST can be used for are Alternaria leaf blight, anthracnose and gummy

stem blight/black rot. Fungicide applications on pumpkin for gummy stem blight/black rot will also be effective against Plectosporium blight.

- Powdery mildew and bacterial diseases cannot be managed with MELCAST.
- In most years, MELCAST will save growers 2-3 fungicide applications per year.
- The table below has the locations of the MELCAST stations in Indiana for the 2009 season.
- For more information, see the extension bulletin *Foliar disease control using MELCAST* (BP-67). This bulletin may be obtained from the Internet at <www.ces.purdue.edu/extmedia/BP/BP-67.pdf> or call Dan Egel at (812) 886-0198.

Table 1: Locations where MELCAST weather is obtained. Areas within approximately 30 miles should be able to use the MELCAST system.

County	Location
Daviess County, IN	1 mile N of Washington on SR 57.
Decker, IN	2 miles NE of Decker
Elkhart County, IN	2 miles NE of Wakarusa
Gibson County, IN	1 mile S of Owensville on SR 65
Niles, MI	6 miles N of Niles on M-140
Oaktown, IN	2 miles SW of Oaktown
Richmond, IN	Downtown Richmond
Rockville, IN	Downtown Rockville
Sullivan County, IN	7 miles W of Carlisle on SR 58
SW Purdue Ag Center, IN	5 miles N of Vincennes
Tift County, GA	Spore sampler location
Vincennes, IN	1 mile E of Lincoln High School
Wanatah, IN	Downtown Wanatah



THE PURDUE PLANT AND PEST DIAGNOSTIC LAB: THE 'DOCTORS' ARE IN - (Tom Creswell and Gail Ruhl) - Plant and Pest Diagnostic Laboratory (P&PDL) - LSPS - Room 101, Purdue University - 915 W. State St. - West Lafayette, IN 47907-2054 - (765) 494-7071 - FAX: (765) 494-3958 - <www.ppdl.purdue.edu>.

Our Lab - The Purdue University Plant and Pest Diagnostic Laboratory (P&PDL) specializes in the identification of plant diseases, insects and plants as well as in the diagnosis of plant-health related problems. The Lab is a central facility for receiving both physical samples and digital images. We are a partner in the National Plant Diagnostic Network (NPDN), a national consortium of diagnostic laboratories that enhance agricultural security by rapidly detecting and monitoring pest and pathogens introduced into a new region of the United States.

Our Services - We strive to provide accurate and rapid identification of:

- Fungal, bacterial and viral plant diseases
- Insects and other arthropods
- Insect damage
- Unknown plants, including terrestrial and aquatic weeds
- Vertebrate pests
- Environmental/cultural injury to plants

We serve as a source of unbiased information regarding pest management strategies and provide training for plant and pest related problems.

Our Fees - Our per sample handling fee for routine diagnosis is \$11.00 for in-state samples and \$22.00 for samples originating from out-of state

For more information on fees and services, see our website: <www.ppdl.purdue.edu/services.html>.

Our Website - You may download forms, submit digital images for diagnosis and keep up to date on current plant problems and pests on our P&PDL website: <www.ppdl.purdue.edu>.

Top 10 Diagnostic Tips

1. **Time is money:** Don't wait until the problem is widespread to send a sample. Many disease and insect problems are manageable if caught early.
2. **Dead plants tell no tales:** Plants that are totally dead, dry or rotten are useless for diagnosis. Collect and submit declining but not completely dead plants.
3. **What's bugging you?** Collect several examples of insects for ID, just in case some get damaged in shipping or if both males and females are needed. Many can be shipped in vials with 70% alcohol. More details at: <www.ppdl.purdue.edu/PPDL/physical.html>.
4. **More is better:** The main concern may be overlooked if you send only one plant, one insect or a single branch. Send plenty of material or a whole plant if practical. Make sure samples are representative of what you are seeing. Digital images can help too!
5. **Get to the root of the problem:** Many plant problems are related to the roots and soil. Dig plants rather

than pull them up to keep roots intact. Include plenty of the small roots and at least a cup of soil. (Complete soil nutrient analysis is available from commercial labs. For details see: <www.ppdl.purdue.edu/PP/dL/pubs/MBP-3.pdf>).

6. **A place for everything:** If soil gets on the leaves during shipment it can mask symptoms or even create a "disease" that wasn't there at shipment. Keep soil around roots so they don't dry out. Bag the roots and soil and tie at the main stem (Figure 1). Wrap foliage in newspaper lightly then pull the bag over the rest of the plant and tie the top loosely to keep foliage from drying out. Make sure foliage isn't wet before packaging.



Figure 1: Wrap roots and soil in a bag which can be closed with a twist tie before shipping. (Photo by Dan Egel)

7. **Include details:** The more you tell the diagnostic lab about the situation the better. Please give complete information including name of plant, location, percent affected, symptoms of concern, distribution, soil type and drainage, and fertilizers or pesticides used recently. For Plant ID or Weed ID please give full details requested on submission form.
8. **Fresher is better:** Mail or deliver samples as soon as you can. Store samples in a cooler on hot days until you can deliver or ship them. Avoid mailing samples on Fridays since most plants will start to rot after being in transit over a weekend. A next day delivery service is needed for urgent samples or those that may rot quickly in shipment. (continued)

9. Fragile, handle with care: Padded mailing envelopes may be used for woody plants which are not fragile but crush proof boxes with crumpled newspaper for padding are preferred in most cases (essential for herbaceous plants and turf samples). Insect vials must be padded to prevent breakage in shipment.

10. 'Heads-up' for priority samples: When mailing high priority samples call to let us know the sample has been shipped so we will be on the 'look-out'! If you are personally dropping off a sample and wish to visit with a diagnostician or specialist it is best to call ahead and schedule an appointment time.



STRIPED CUCUMBER BEETLES - (*Rick Foster*) - Striped cucumber beetles are out, sometimes in very large numbers, in many areas of the state. If you are lucky enough to have cucurbits in the field, you should be watching them carefully at this time. You should visit your fields at least 3 times per week to catch the beetles as soon as they arrive. Young plants tend to be especially susceptible to beetle feeding and/or bacterial wilt, so detecting the infestation early is important. Treatment with a foliar insecticide is recommended when populations exceed an average of 1 beetle per plant on muskmelons, cucumbers, and young pumpkin plants. Cucurbit crops that are not susceptible to bacterial wilt, watermelons and squash, should be treated when populations exceed 5 beetles per plant, or if young plants are being defoliated. The pyrethroid insecticides (*Ambush*® / *Pounce*®, *Asana*®, *Baythroid*®, *Brigade*®, *Danitol*®, *Mustang Max*® and *Warrior*®) will all provide excellent control of cucumber beetles.



MANAGING COVER CROPS IN A WET SPRING - (*Liz Maynard and Rick Foster*) - Wet weather in April may have delayed killing or incorporation of cover crops. As a result, the time between incorporation and planting may be shorter than normal, or the cover crop may be larger than normal. There are implications for pest, nutrient, and cover crop management.

Black cutworm moths prefer to lay eggs in vegetated areas, including fields with cover crops or weeds. To track black cutworm moth catches in pheromone traps throughout the state, refer to the Purdue Pest & Crop Newsletter at <<http://extension.entm.purdue.edu/pest-crop/2009/index.html>>. If larvae are present in the cover crop and they survive until the cash crop is planted or emerges, they may cause serious stand loss. If you plow down a cover crop that is infested with cutworms, you should wait at least 7 days before you plant. If you plant sooner, you may want to use an appropriate pyrethroid insecticide shortly after you plant to protect your crop.

Seed corn maggot adults prefer to lay eggs in soils with high levels of fresh organic matter, such as newly-incorporated cover crops. Larvae can cause serious stand loss in both direct seeded crops and transplanted cucurbits. The presence of the decaying organic matter

will serve as an attractant to the egg laying female flies, so the longer you can wait after incorporation, the less damage you are likely to experience. Waiting 2-3 weeks will usually suffice. Even more importantly, waiting until soil temperatures reach at least 70°F will greatly reduce the amount of damage. Similarly, waiting to plant will reduce the amount of damage from cabbage maggots on crucifers and onion maggots on onions.

Nitrogen tie-up and release by the decomposing cover crop depend on the ratio of carbon to nitrogen (C:N ratio) in the plant tissue. If the ratio is higher than about 30:1, some soil nitrogen will probably be temporarily tied up as the cover crop begins to decompose, possibly limiting early season crop growth. For grain crops like winter rye, the C:N ratio increases as the crop matures, and by flowering the C:N ratio is higher than 30:1. If the weather delay pushes your cover crop to the point where N tie-up is likely, the problem can be overcome by supplying a small amount of fertilizer with readily available N (20 – 25 lb./A N) close to planting time.

Annual legumes like hairy vetch have a lower C:N ratio throughout the life cycle, and no matter when they are killed are not likely to tie up soil N. However, the longer they grow in the spring before they are killed, the more N they fix. If an annual legume cover crop is allowed to grow longer than usual, the additional N it supplies should be taken into consideration. As a rough estimate, each 1 inch of growth over a height of 6 inches will contribute about 2.6 lb. of N for this season's crop if the cover crop is incorporated (*SAN 2007*, pp. 22-23). If you normally work up a crop of hairy vetch when it is 6 inches tall, but this year you don't get to it until it is 16 inches, about 26 lb. additional N will be supplied by the vetch, beyond the normal amount from a 6-inch height.

If the cover crop has grown too large to be incorporated using standard equipment, it may be possible to mow it, allow it to dry down a little, and then incorporate. Or, if crop plans allow for no-till or strip-tillage, a killed cover crop need not be entirely incorporated. I wouldn't recommend adopting either no-till or strip till on a wide scale without careful planning and trials, but this may be a good opportunity to experiment with a small area of reduced tillage.

For reduced tillage systems, cover crops may be killed with herbicide, or winter annuals like winter rye and hairy vetch may be killed by mowing or rolling at the appropriate stage. Winter rye can be mowed after it has bloomed, and may be rolled at the milky dough stage. Hairy vetch can be mowed or rolled at 75% bloom or later, when immature seed pods are visible from the earliest flowers. If not mowed or rolled at the appropriate time, the cover crop will not die and can be very difficult to control once the crop is planted.

Although wet spring weather adds to the difficulty of managing cover crops, it also means that cover crop nutrient-scavenging capabilities are put to good use. Growing cover crops are taking up nitrogen, potas-

